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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/023,906	12/21/2001	Masaki Kurihara	392.1735	5249
21171	7590	02/11/2005	EXAMINER	
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			RAPP, CHAD	
			ART UNIT	PAPER NUMBER
			2125	

DATE MAILED: 02/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/023,906

Applicant(s)

KURIHARA ET AL.

Examiner

Chad Rapp

Art Unit

2125

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 December 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3,4,6,8 and 10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3 and 6 is/are allowed.
- 6) ☒ Claim(s) 1,4 and 8 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 02/06/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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1. Claims 1, 3, 4, 6, 8 and 10 are presented for examination.

The above claims were selected due to the previous election/restriction office action which was responded with a selection of group I.

***Allowable Subject Matter***

2. Claims 3 and 6 are allowed over the cited prior art of record.

As to independent claim 3, "means for controlling discharge quiescent time such that a numerical value obtained by said discharge pulse number counting means every determined time coincides with a numerical value stored in said reference discharge pulse number memory means in accordance with the comparison result by said comparison means", in combination with the other claimed elements and features is not taught nor fairly suggested by the prior art of record.

As to independent claim 6 "a liquid amount controller adapted to increase or decrease an amount of coolant in accordance with said ratio", in combination with the other claimed elements and features is not taught nor fairly suggested by the prior art of record.

3. Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiguchi et al.(US 6,278,075 B1) in view of Kamiguchi et al. (EP 0934791 A2).

Kamiguchi et al.(US 6,278,075 B1) teaches the claimed invention (claim 1) substantially as claimed including a controller for a wire electric discharge machine performing electric discharge machining by applying electric discharge pulse current between a wire electrode and a work piece while said wire electrode and said work piece are caused to relatively move to each other comprising:

a. Discharge pulse number counting means for counting a discharge pulse number applied every predetermined time is taught as the main pulse number storing device(col. 7 lines 34-39);

b. Moving means for relatively moving said wire electrode and said work piece to each other along a machining path on the basis of a moving command is taught as the drive for the x-axis and y-axis motors(col. 1 lines 48-53);

c. Reference discharge pulse number memory means for storing a discharge pulse number which is used as a reference is taught as reference main pulse storing device(col. 6 lines 53-55);

d. Means for determining a ratio of a numerical value obtained by said discharge pulse number counting means to a numerical value stored in said reference discharge pulse number memory means is taught as the thickness calculating device uses the ratio as the plate thickness change rate(col. 8 line 62 to col. 9 line 4 and fig.1).

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Kamiguchi et al.(US 6,278,075 B1) teaches the above listed details of the independent claim 1, however, Kamiguchi et al.(US 6,278,075 B1) does not teach: means for outputting, to said moving means, distance obtained by multiplying relative moving distance between said wire electrode and said work piece to be determined by a present feed speed and said predetermined time by said ratio as a moving command every said predetermined time.

Kamiguchi et al ( EP 0934791 A2) teaches :

a. Means for outputting, to said moving means, distance obtained by multiplying relative moving distance between said wire electrode and said work piece to be determined by a present feed speed and said predetermined time by said ratio as a moving command every said predetermined time is taught as the movement distance or machining time period has a relationship with the thickness of work piece which is the ratio of the pulse number and reference pulse number (page 4 lines 16-17 and page 10 lines 11-14).

It would have been obvious to one of ordinary skill in the art at the time the invention was made or used to modify the teachings of Kamiguchi et al.(US 6,278,075 B1) with the teachings of Kamiguchi et al ( EP 0934791 A2) because the two have the same inventors and it is improving the EDM using a controller to monitor changes in the work piece thickness and improve machining on said work piece that changes in thickness.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiguchi et al.(US 6,278,075 B1) in view of Kamiguchi et al. (EP 0934791 A2).

Kamiguchi et al.(US 6,278,075 B1) teaches the claimed invention (claim 4) substantially as claimed including a controller for a wire electric discharge machine performing electric discharge machining by applying electric discharge pulse current between a wire electrode and a work piece while said wire electrode and said work piece are caused to relatively move to each other comprising:

a. Discharge pulse number counting means for counting a discharge pulse number applied every predetermined time is taught as the main pulse number storing device(col. 7 lines 34-39);

b. Moving means for relatively moving said wire electrode and said work piece to each other along a machining path on the basis of a moving command is taught as the drive for the x-axis and y-axis motors(col. 1 lines 48-53);

c. Reference discharge pulse number memory means for storing a discharge pulse number which is used as a reference is taught as reference main pulse storing device(col. 6 lines 53-55);

d. Comparison means for comparing a numerical value obtained by said discharge pulse number counting means every predetermined time with a numerical value stored in said reference discharge pulse number memory means is taught as the thickness calculating device uses the ratio as the plate thickness change rate(col. 8 line 62 to col. 9 line 4 and fig.1).

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Kamiguchi et al.(US 6,278,075 B1) teaches the above listed details of the independent claim 4, however, Kamiguchi et al.(US 6,278,075 B1) does not teach: a quiescent time controller for controlling discharge quiescent time so as to restrain surplus supply of energy in accordance with the comparison result by said comparison means.

Kamiguchi et al. (EP 0934791 A2) teaches :

a. A quiescent time controller for controlling discharge quiescent time so as to restrain surplus supply of energy in accordance with the comparison result by said comparison means is taught as adjusting due to the change of work piece thickness which is the main and reference pulse ratio which changes the energy amount and the pause time period device adjusts the energy to keep the current density the same.

It would have been obvious to one of ordinary skill in the art at the time the invention was made or used to modify the teachings of Kamiguchi et al.(US 6,278,075 B1) with the teachings of Kamiguchi et al ( EP 0934791 A2) because the two have the same inventors and it is improving the EDM using a controller to monitor changes in the work piece thickness and improve machining on said work piece that changes in thickness.

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiguchi et al.(US 6,278,075 B1) in view of Kamiguchi et al. (EP 0934791 A2).

Kamiguchi et al.(US 6,278,075 B1) teaches the claimed invention (claim 8) substantially as claimed including a controller for a wire electric discharge machine performing electric discharge machining by applying electric discharge pulse current between a wire electrode and a work piece while said wire electrode and said work piece are caused to relatively move to each other comprising:

a. Discharge pulse number counting means for counting a discharge pulse number applied every predetermined time is taught as the main pulse number storing device(col. 7 lines 34-39);

b. Moving means for relatively moving said wire electrode and said work piece to each other along a machining path on the basis of a moving command is taught as the drive for the x-axis and y-axis motors(col. 1 lines 48-53);

c. Reference discharge pulse number memory means for storing a discharge pulse number which is used as a reference is taught as reference main pulse storing device(col. 6 lines 53-55);

d. Comparison means for comparing a numerical value obtained by said discharge pulse number counting means every predetermined time with a numerical value stored in said reference discharge pulse number memory means is taught as the thickness calculating device uses the ratio as the plate thickness change rate(col. 8 line 62 to col. 9 line 4 and fig.1).

Kamiguchi et al.(US 6,278,075 B1) teaches the above listed details of the independent claim 8, however, Kamiguchi et al.(US 6,278,075 B1) does not teach: on the basis of the



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comparison result by said comparison means, discharge quiescent time is controlled and an amount of movement every said predetermined time in a moving command to be outputted to said moving means is also controlled.

Kamiguchi et al. (EP 0934791 A2) teaches :

a. On the basis of the comparison result by said comparison means, discharge quiescent time is controlled and an amount of movement every said predetermined time in a moving command to be outputted to said moving means is also controlled is taught as the discharge pause time control device calculates pause time period by multiplying the discharge pause time period in machining the set distance  $\Delta x$  at the preceding time by the reciprocal number of the plate thickness change rate which is the ratio.

It would have been obvious to one of ordinary skill in the art at the time the invention was made or used to modify the teachings of Kamiguchi et al.(US 6,278,075 B1) with the teachings of Kamiguchi et al ( EP 0934791 A2) because the two have the same inventors and it is improving the EDM using a controller to monitor changes in the work piece thickness and improve machining on said work piece that changes in thickness.

### ***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chad Rapp whose telephone number is (571)272-3752. The examiner can normally be reached on Mon-Fri 11:00-7:00.

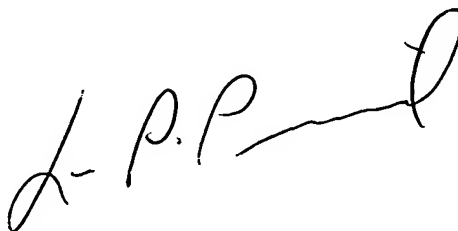
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on (571)272-3749. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chad Rapp  
Examiner  
Art Unit 2125

cjr

A handwritten signature in black ink, appearing to read 'L. P. P.' followed by a long horizontal stroke and a loop at the end.

**LEO PICARD**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2100**